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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/799,953	03/11/2004	Jeff Davis	034-04-001	8027

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EXAMINER	
MCMAHON, MARGUERITE J	
ART UNIT	**PAPER NUMBER**
3747	

DATE MAILED: 03/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/799,953	DAVIS, JEFF	
	Examiner	Art Unit	
	Marguerite J. McMahon	3747	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *17 and 18* is/are allowed.

6)☒ Claim(s) *1-9,12,13,15,16,19 and 20* is/are rejected.

7)☒ Claim(s) *10,11 and 14* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1- 9, 12-13, 15, 16, and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartman et al (6,345,611) in view of Marsee (4,086,892). Hartman et al show a gas engine supply apparatus comprising a first reservoir (unnumbered, within heat exchanger 10) defining an enclosure suited for containing gas, and having an input port 22 and 42 adapted to connect to a supply of gas 12 and an output port 96, a channel 78 (which includes tubular wall 68), adapted to receive coolant from a gas engine and mounted with the first reservoir such that the channel is in thermal communication therewith, the exhaust channel comprising a first port 56 adapted to receive coolant from the gas engine, a second port 86 adapted to allow coolant to exit the channel, and a path 78 from the first port to the second port, where the coolant along a portion of the path is in thermal communication with the first reservoir, wherein the channel along the portion of the path comprises a cylinder which is in physical contact with the first reservoir, wherein the first reservoir comprises a cylinder, wherein the input port of the first reservoir comprises a pressure regulator 18 adapted to connect to a supply of gas 12 at an unregulated input port and connected to the first reservoir at a regulated output port 40.

Hartman et al show everything except employing a second reservoir comprising a cylinder and a second pressure regulator, utilizing exhaust gas as the heating medium, the first port comprising a flexible hose, and the particular configuration created by the use of two cylinders.

It would have been obvious to one of ordinary skill in the art to modify Harman et al by providing a second cylinder and a second pressure regulator, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St Regis Paper Co., v. Bemis Co.*, 193 USPQ 8. In addition, it should be noted that the specification, at lines 5-6 of page 4 state that "either of the reservoirs R1, R2 can be omitted" thus providing evidence that the device would function with either one or two of the first and second reservoirs.

Furthermore, it would have been obvious to one having ordinary skill in the art to modify Harman et al by employing exhaust gas as the heating medium in lieu of coolant, since these are art recognized alternatives, known for the same purpose, as evidenced by Marsee (4,086,892) which states at column 2, lines 17-20, that the chamber (containing fuel mixture) may be "heated by providing it with a jacket through which hot engine coolant or exhaust gas circulates."

In addition, it would have been obvious to modify Hartman et al by utilizing a flexible hose in lieu of line 20, since the two are functional equivalents and the device would function in the same way in either case.

Finally, the particular configuration created by the use of two reservoirs would have been an obvious matter of design choice, as the device would function in the same way regardless of the whether or not an additional reservoir was provided.

Allowable Subject Matter

Claims 10, 11, and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 17and 18 are allowed.

Response to Arguments

Applicant's arguments filed 1/19/06 have been fully considered but they are not persuasive. Applicant argues that Marsee does not show a variety of elements, e.g. heating of fuel before it enters the engine, pressure regulation of fuel, design details that would accommodate the difference between coolant and exhaust gas, which the examiner did not rely upon Marsee to show. Therefore these arguments are not relevant.

Applicant further argues that Marsee does not teach that engine coolant is recognized in the art as an art recognized alternative for exhaust gas in the fuel heating art, known for the same purpose. The examiner contends that exhaust gas and coolant are in fact recognized as art recognized alternatives, known for the same purpose in the fuel heating art, as evidenced by Marsee (4,086,892) which states at column 2, lines 17-20, that the chamber (containing fuel mixture) may be "heated by providing it with a jacket through which hot engine coolant or exhaust gas circulates."

While the examiner is aware that there are many differences between engine exhaust gas and engine coolant, the fact remains that the two are both conventional, widely used, and known by those skilled in the art as art recognized alternatives in the fuel heating art, known for the same purpose, that of heating fuel, regardless of the many different characteristics that differentiate them from each other, and the use of exhaust gas as a source of heat in lieu of coolant does not constitute a patentable distinction.

Obviously, if one is to substitute exhaust gas for coolant, one would make appropriate design modifications, such as the use of an appropriate sort of thermostat, if the wax thermostat utilized in Hartman et al were in fact vulnerable to the heat put out by the hot exhaust gas temperatures. Thus, even if Applicant's argument that exhaust gases would not work as the heat source in the device of Hartman et al because of the wax thermostat, it is not convincing as it would have been within the purview of one of ordinary skill in the art to employ a different type of thermostat, and to program the thermostat to react to the appropriate temperatures such that the device would function properly. However, this argument is suspect, since the device of newly cited Redele (4,432,329) shows utilizing either coolant (see claim 4) or engine exhaust (see claim 5) as the heat source, while employing a wax thermostat (see claim 3), with no apparent problem as to the functioning of the wax thermostat.

Applicant further argues that the Harman et al device relies on recirculating the heating medium to the engine, and that a closed loop engine coolant system is incompatible with the open loop requirements of an engine exhaust system. As the

examiner has already shown, with more than one reference, that that exhaust gas and coolant are in fact recognized as art recognized alternatives, known for the same purpose in the fuel heating art, the differences in the configurations of each is not a patentable distinction. Furthermore, this limitation is not found in the claims, so the point is not relevant.

Applicant argues that substituting exhaust for coolant would destroy the device of Hartman et al, but provides no evidence for this statement, other than arguing unpersuasively that the wax thermostat would be endangered. The examiner finds this to be an untrue statement, and refers Applicant back to the Redele and Marsee references, which both teach the use of either coolant or exhaust interchangeably as the heat source for the fuel.

Applicant further argues that Hartman et al and Marsee do not show a second port, which allows the heating fluid (exhaust or coolant) to exit the channel. Hartman et al does show an such an exit port 96, as noted in the above rejection. Marsee was not relied upon to show this feature. The coolant in Hartman et al exits the channel as required by the claims.

Applicant further argues that the utilization of a second reservoir is not mere duplication of essential working parts, and quotes the following from the specification:

"Note that either of the reservoirs R1, R2 can be omitted; the heat transfer of the system might be reduced, but the resulting single reservoir system will still be advantageous to the operation of the gas engine system." Specification par. [0012].

In fact, this quote from the specification supports the examiner's position that the utilization of a second reservoir is mere duplication of the essential working parts of the invention. Applicant goes on to say that the second reservoir increases the heat transfer of the system. This is exactly what is meant by duplication of the essential working parts of the invention, i.e. that an additional reservoir would provide additional heat to the fuel.

Applicant also argues that the location of the pressure regulator as cited in claims 7 and 19 is not shown. It is noted that the location of the pressure regulator is not considered to be a patentable distinction, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ. In addition, the wording of claim 19 is so broad as to read on any sort of a container of the gas, such as a pipe.

Applicant argues that Hartman et al has no teaching or suggestion of any configuration that encourages uniform input and output gas temperatures. This limitation is not found in the claims, and is therefore not relevant.

Finally, Applicant makes disparaging remarks about the complexity of the Hartman et al device but fails to specifically point out in the claims any specific elements, which are not shown by the prior art.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Note the fuel heating device of Redele (4,432,329), which

employs either coolant or exhaust as the fuel heating source, and employs a wax thermostat.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marguerite J. McMahon whose telephone number is571-272-4848. The examiner can normally be reached on flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yuen Henry can be reached on 703-308-1946. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MARGUERITE MCMAHON
PRIMARY EXAMINER